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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,561	09/04/2003	Yoshiaki Tanaka	10844-32US (203058 (C-2))	7840
570	7590	04/13/2005	EXAMINER	
AKIN GUMP STRAUSS HAUER & FELD L.L.P. ONE COMMERCE SQUARE 2005 MARKET STREET, SUITE 2200 PHILADELPHIA, PA 19103-7013			VORTMAN, ANATOLY	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,561

Applicant(s)

TANAKA, YOSHIAKI

Examiner

Anatoly Vortman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,9,37,41,45,49,77,81,93 and 97 is/are rejected.
- 7) ☒ Claim(s) 13,17,21,25,29,33,53,57,61,65,69,73,85 and 89 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/18/05 & 9/4/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are:

2-4,6-8,10-12,14-16,18-20,22-24,26-28,30-32,34-36,38-40,42-44,46-48,50-52,54-56,58-60,62-64,66-68,70-72,74-76,78-80,82-84,86-88,90-92,94-96 and 98-100.

DETAILED ACTION

Election/Restrictions

1. Claims 2-4, 6-8, 10-12, 14-16, 18-20, 22-24, 26-28, 30-32, 34-36, 38-40, 42-44, 46-48, 50-52, 54-56, 58-60, 62-64, 66-68, 70-72, 74-76, 78-80, 82-84, 86-88, 90-92, 94-96 and 98-100, are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to the nonelected species, there being no allowable generic or linking claim. Applicant timely responded to the restriction (election) requirement in the reply filed on 2/18/05. Thus, claims 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53, 57, 61, 65, 69, 73, 77, 81, 85, 89, 93 and 97, are drawn to the elected Specie I, are considered on the merits in the following Office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5, 9, 45, 49, 93, and 97, are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA), (i.e. JP/2001-266723).

Regarding claims 1 and 5, the Applicant, referring to JP/2001-266723, has disclosed that fuses having fuse elements of ternary In-Sn-Bi alloys had been known in the fuse art at the time

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the invention was made. Specifically, the Applicant has pointed out that fuse element which has an alloy composition of 42 to 53% In, 40 to 46% Sn, and 7 to 12% Bi was known in the fuse art (see p. 4, of the specification, lines 4-5, in the "Description of the Prior Art"). The claimed ranges as recited in claims 1 and 5, are overlapping the aforementioned AAPA ranges.

Thus, it would have been obvious to a person of ordinary skill in the fuse art at the time the invention was made to select ranges for ternary In-Sn-Bi alloy as claimed in claims 1 and 5, since a prima facie case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art. *E.g., In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1976); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Regarding claim 9, the fuse element disclosed by AAPA / JP/2001-266723 inherently contains inevitable impurities.

Regarding claim 45 and 49, AAPA / JP/2001-266723 disclosed a heating element disposed on the substrate (4) (see paragraph [0021]).

Regarding claims 93 and 97, AAPA / JP/2001-266723 disclosed (Fig. 4), that the fuse element (2) connected between a pair of lead conductors (1) is sandwiched between insulative films (4, 5).

4. Claims 37, 41, 77, and 81, are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA/ JP/2001-266723 in view of US/4,496,475 to Abrams.

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Regarding claims 37 and 41, AAPA / JP/2001-266723 disclosed all as applied to claims 5 and 9, respectively, and further that said thermal fuse has film electrodes (Fig. 4, elements (1)) formed on a substrate (4), said electrodes made of a conductive paste comprising silver (Ag) (see JP/2001-266723, paragraph [0019]), but did not disclose that said paste comprises a binder and silver particles.

Abrams disclosed a conductive paste (Fig. 1), comprising silver particles (16) and a binder (50), wherein said paste is useful for forming conductive bodies on a substrate (20), while having good properties and reduced production cost (column 3, lines 40-45).

It would have been obvious to a person of ordinary skill in the fuse art at the time the invention was made to use conductive paste as taught by Abrams for forming electrodes of AAPA / JP/2001-266723, in order to enhance electrical and mechanical properties of said electrodes and to reduce production cost.

Regarding claim 77 and 81, AAPA / JP/2001-266,723 disclosed a heating element disposed on the substrate (4) (see paragraph [0021]).

Allowable Subject Matter

5. Claims 13, 17, 21, 25, 29, 33, 53, 57, 61, 65, 69, 73, 85, and 89, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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regarding claims 13, 17, 29, 33, 53, 57, 69, and 73, claims 13 and 17 recite: "Sn or Ag film";

regarding claims 21, 25, 61, and 65, claims 21 and 25 recite: "conductors have a disk-like shape"; and,

regarding claims 85 and 89, each of the claims recites: "lead conductors are partly exposed from one face of an insulating plate to another face".

The aforementioned limitations in combination with all remaining limitations of the respective claims, are believed to render the subject matter of said claims patentable over the art of record.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

US/20020113685, 20040100355, 2703352, 4216457, 4367451, 5130689, 6064293, and 6556122 disclosed electrical fuses with fusible elements formed of various alloys.

US/3801364 disclosed method of forming conductors on a printed circuit boards using conductive paste.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anatoly Vortman
Primary Examiner
Art Unit 2835

AV

A handwritten signature in dark ink, appearing to read 'A Vortman', followed by a long horizontal flourish.